Dear Sirs,

We have pleasure in announcing herewith the cathode-ray tube type DG 13-32, which has been incorporated in our programme to suit the requirements for 13 cm tubes for service oscilloscopes and the like.

The cathode-ray tube DG 13-32 is equivalent to the American type 5UP1 and combines a great deflection sensitivity, a small line width and high brilliance.

We remain,

Very truly yours,
The Philips Cathode-Ray Tube DG 13-32 is especially designed to satisfy the requirements for visual observation of oscillographic phenomena.

The characteristic features of the tube are:

- double symmetric electrostatic deflection;
- high deflection sensitivity at full scan;
- brilliant and fine spot at operation beam-current;
- 4 watt cathode adapted to existing circuitry technique;
- equivalent to the Cathode-Ray Tube 5 UP 1.
ELECTRICAL DATA

HEATING
Indirect by a.c. or d.c.
Parallel supply
Heater voltage 6.3 V
Heater current 0.6 A

SCREEN
Fluorescence green
Persistence medium

FOCUSING
Electrostatic

DEFLECTION
Double electrostatic $D_1 D_1'$ symmetric
$D_2 D_2'$ symmetric

DIRECT INTERELECTRODE CAPACITANCES
Grid No. 1 to all other electrodes $C_{D_1} = 4.3 \text{ pF}$
Cathode to all other electrodes $C_K = 6.5 \text{ pF}$
$D_1$ to all other electrodes $C_{D_1} = 4.6 \text{ pF} \ 1)$
$D_1'$ to all other electrodes $C_{D_1'} = 4.6 \text{ pF} \ 1)$
$D_2$ to all other electrodes $C_{D_2} = 9.3 \text{ pF} \ 1)$
$D_2'$ to all other electrodes $C_{D_2'} = 5. \text{ pF} \ 1)$
$D_3$ to $D_3'$ $C_{D_3 D_3'} = 1.5 \text{ pF}$
$D_4$ to $D_4'$ $C_{D_4 D_4'} = 2 \text{ pF}$

LINE WIDTH at
Grid No. 2 + 4 voltage $V (g_2 + g_4) = 2000 \text{ V}$
Screen current $I_s = 0.5 \mu\text{A}$

0.4 mm \ 2)

MAXIMUM DIMENSIONS (in mm) AND ELECTRODE CONNECTIONS

1) To all electrodes, except the opposite deflection plate.
2) Measured on a circle of 50 mm diameter.
TYPICAL OPERATING CONDITIONS

Grid No. 2 and 4 voltage \[ V_{g_2 + g_4} = 2000 \text{ V} \]
Grid No. 3 voltage \[ V_{g_3} = 340 - 640 \text{ V} \]
Neg. grid No. 1 voltage for visual extinction of the focused spot \[ -V_{g_1} = \text{ max. 90 V} \]
Sensitivity \( (D_1D_1') \) \[ N_1 = 0.41 - 0.55 \text{ mm/V} \]
Sensitivity \( (D_2D_2') \) \[ N_2 = 0.33 - 0.45 \text{ mm/V} \]

LIMITING VALUES (Design centre value)

Grid No. 2 and 4 voltage \[ V_{g_2 + g_4} = \text{ max. 2500 V} \]
Grid No. 3 voltage \[ V_{g_3} = \text{ max. 1000 V} \]
Grid No. 1 voltage Negative value \[ -V_{g_1} = \text{ max. 200 V} \]
Positive value \[ V_{g_1} = \text{ max. 0 V} \]
Peak voltage on deflection plates \( D_1D_1' \) \[ V_{D_1D_1'} = \text{ max. 500 V} \]
Peak voltage on deflection plates \( D_2D_2' \) \[ V_{D_2D_2'} = \text{ max. 500 V} \]
Voltage between cathode and heater \[ V_{kF} = \text{ max. 125 V} \]
Screen dissipation \[ W_I = \text{ max. 3 mW/cm}^2 \]
Grid No. 2 and 4 dissipation \[ W_{g_2 + g_4} = \text{ max. 4 W} \]

MAX. CIRCUIT VALUES

Deflection plate resistance \[ R_D = \text{ max. 5 MQ} \]
Grid No. 1 circuit resistance \[ R_{g_1} = \text{ max. 1.5 MQ} \]

MECHANICAL DATA

MOUNTING POSITION
Any

DIMENSIONS

Overall length \( 375 \pm 9.5 \text{ mm} \) \( (14\frac{1}{8} \pm \frac{3}{8} \text{ in}) \)
Screen diameter \( 13 \text{ cm} \) \( (5\text{ in}) \)

NET WEIGHT
790 g \( (1 \text{ lb 12 oz.}) \)

\text{\textsuperscript{a}) For calculation of the grid No. 3 voltage potentiometer, a grid No. 3 current of min. -15 \mu A and max. +10 \mu A must be taken into account.}
Grid No. 2 and No. 4 current plotted against negative grid No. 1 current.

Screen current as a function of negative grid cut-off voltage.